

**Abstract of the Disclosure**

An air supply apparatus includes a buffer tank for receiving and storing ultra-pure water from an ultra-pure source, a temperature/humidity controller (THC) for conditioning the air using the ultra-pure water from the buffer tank, an ultra-pure water pipe for delivering the ultra-pure water from the ultra-pure source to the buffer tank, and an air pipe for delivering the air from the THC to semiconductor device fabricating equipment. A control mechanism, including at least one valve disposed in the piping of the apparatus, allows the apparatus to be selectively operated in a normal mode in which the ultra-pure water is allowed to flow from the ultra-pure water source to the THC via the buffer tank, and a cleaning mode in which the THC runs using ultra-pure water stored in the buffer tank while the ultra-pure water pipe is being cleaned.